Hybrid Rotary Steerable Systems.
The drilling of complex wellbore trajectories and extended-reach wells has always involved tradeoffs. Steerable motors can produce high rates of penetration, but often at the cost of penetration rate. Rotary steerable systems (RSSs) can achieve higher rates of penetration and tend to drill smoother wellbores, but have not been able to build angle at the same rate as steerable motors. A new hybrid RSS has been developed, combining the high dogleg-capability performance of a steerable motor with the advantages normally associated with rotary drilling.

Lost Circulation. With the increase in the number of complex wells, the impact of lost circulation on well construction costs is significant and is growing worldwide. The drilling industry has developed a range of technologies and services designed to prevent or mitigate lost circulation. Industry experience has shown that it is often easier and more effective to prevent losses from occurring than to attempt to stop or reduce them once they have started. This article discusses lost circulation prevention through the use of wellbore strengthening materials, as well as the various schools of thought on mechanisms to stabilize the wellbore.

Next-Generation Reservoir Simulators. New reservoir simulation technology is now capable of handling large, complex fields. This technology uses parallel computing networks, advanced gridding and new software technology to significantly reduce execution time—sometimes by an order of magnitude. Coupled with enhanced models for multilateral wells and improved field management, this advanced technology simulates the project at any stage from formation discovery to final abandonment and can benefit both new and old fields.

New Books

**Geophysical Characterization of Gas Hydrates**

This compilation documents various types of geophysical studies that are carried out for the detection and mapping of gas hydrates. Twenty papers are divided among five sections that range from geophysical investigations into gas hydrates to rock physics modeling and gas hydrate laboratory studies.

Contents:
- Gas Hydrates—Geophysical Exploration Techniques and Methods
- Motivations for the Geophysical Investigation of Gas Hydrates
- Section 1: Seismic Imaging: Introduction to Seismic Imaging; Seismic Indicators of Natural Gas Hydrate and Underlying Free Gas; Seismic AVO for Gas-Hydrate-Related Reflections; Analysis of Gas-Hydrate Provinces by Ocean-Bottom Seismic Methods; Inversion of Seismic Data for Elastic Parameters: A Tool for Gas-Hydrate Characterization; Vertical Seismic Profiles through Gas-Hydrate-Bearing Sediments
- Section 2: Geophysical Imaging: Introduction to Geophysical Imaging; Marine Controlled-Source Electromagnetics and the Assessment of Seafloor Gas Hydrate; Resolving an Onshore Gas-Hydrate Layer with Long-Offset Transient Electromagnetics (LOTEM); Seafloor Compliance Imaging of Marine Gas-Hydrate Deposits; Gas Hydrates and Magnetism: Surveying and Diagenetic Analysis; Infrared Imaging of Gas-Hydrate-Bearing Cores; State of the Art and Future Prospects
- Section 3: Borehole Studies: Introduction to Borehole Studies, Evaluation of Natural Gas-Hydrate Systems Using Borehole Logs, Borehole Pressure Coring Techniques and Core Analysis at In Situ Pressure, Seafloor Marine Heat Flux Measurements and Estimation of Heat Flux from Seismic Observations of Bottom Simulating Reflectors
- Index

A collection of 26 individual articles constitutes this recent . . . volume . . . in SEG’s Geophysical Development Series. Written by leading experts, the articles give the reader an up-to-date overview and a sound starting point for designing geophysical applications in the search for and production of this new unconventional energy resource. . . . The editors have made a successful compilation . . . highly recommended.

**Plate Tectonics: Continental Drift and Mountain Building**

This book covers the basics of plate tectonics, a theory developed in the last century from the concept of continental drift. The authors synthesize new scientific developments, corrections and theory refinements into their presentation of data and descriptions of these geodynamic processes.

Contents:
- Contractional Theory, Continental Drift and Plate Tectonics
- Plate Movements and Their Geometric Relationships
- Continental Graben Structures
- Passive Continental Margins and Abyssal Plains
- Mid-Ocean Ridges
- Hot Spots
- Subduction Zones, Island Arcs and Active Continental Margins
- Transform Faults
- Terranes
- Early Precambrian Plate Tectonics
- Plate Tectonics and Mountain Building
- Old Orogens
- Young Orogens—The Earth’s Loftiest Places
- Glossary, References, Keyword Index

The authors admirably provide a comprehensive and compact condensation, if not unavoidable simplification, of plate tectonics . . . . One of the book’s strongest points is the many excellent, colorful maps and cross-sections that complement the text. References to the literature are very well chosen. Recommended.